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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,831	08/19/2003	Christopher R. McMurray	R087 1270.1	5159

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EXAMINER
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NGUYEN, TRINH T

ART UNIT	PAPER NUMBER
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3644

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/643,831

Applicant(s)

MCMURRAY ET AL.

Examiner

Trinh T. Nguyen

Art Unit

3644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Amendment dated 5/26/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-20, 22, 23 and 25-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-20, 22, 23 and 25-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

**Claim Rejections - 35 USC § 102**

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4, 7, 8, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Stone (US 6,073,560).

For claims 1 and 8, Stone discloses a sabot comprising: a compression section (214,212) defining a payload receiving chamber (240) at a forward end of the sabot for receiving a slug (50) therein, the compression section including a plurality of fins (220,221,223) defined by a combination of alternating ridges on an interior and an exterior surface thereof; and a solid section (216) wherein the compression section is adapted to at least partially collapse upon firing while remaining substantially intact to produce a volume change.

For claims 4 and 20, Stone further discloses the solid section includes a powder cup (215) section formed opposite the compression section.

For claim 7, Stone further discloses the sabot is axisymmetric.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

Art Unit: 3644

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stone (US 6,073,560) in view of Hoffman (US 4,939,997).

As described above, Stone discloses most of the claimed invention except for indicating that the compression section further includes a locking ring mounted within the payload receiving chamber for engaging the slug.

Hoffman teaches a similar firearm round as that of Stone in which Hoffman's firearm round having a projectile/slug (6) mounted within a sabot (1) wherein the sabot further comprises the use of a locking ring (7) so as to engage the projectile/slug therein (see Figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the firearm round of Stone so as to include the use of a locking ring for the engagement of the projectile/slug within the sabot, in a similar manner as taught in Hoffman, since to do so would provide the locking ring as a securing device under centrifugal force and in response to the spin acting on the projectile/slug the locking ring will expand to facilitate the projectile/slug exiting from the sabot.

5. Claims 3, 9, 11-14, 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stone (US 6,073,560) in view of Gualandi (US 6,481,356).

For claims 3 and 27-30, as described above, Stone discloses most of the claimed invention except for indicating that the payload receiving chamber includes a post.

Gualandi teaches a similar firearm round as that of Stone in which Gualandi's firearm round having the payload receiving chamber includes a post (8,9). It would have been

obvious to one having ordinary skill in the art at the time the invention was made to have modified the firearm round of Stone so as to include the payload receiving chamber having a post, in a similar manner as taught in Gualandi, since to do so would provide for a gyroscopic stability and a mechanism actuating a high thrust pulse centering effect.

For claims 9, 11, 12 and 14, as described above, Stone discloses most of the claimed invention except for indicating that the slug comprises a nose, a driving band adjacent the nose and a stem connected to the driving band, and wherein the stem of the slug includes a post cavity, and wherein the payload receiving chamber of the sabot includes a post fitted within the post cavity of the slug, and wherein the stem has a diameter less than a diameter of the driving band. Gualandi teaches a similar firearm round as that of Stone in which Gualandi's firearm round having the slug (7) comprises a nose, a driving band adjacent the nose and a stem connected to the driving band, and wherein the stem of the slug includes a post cavity (the areas where posts 8 & 9 are located), and wherein the payload receiving chamber of the sabot includes a post (8,9) fitted within the post cavity of the slug, and wherein the stem has a diameter less than a diameter of the driving band (see Figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the firearm round of Stone so as to include the specific structural components as claimed in claims 9, 11, 12 and 14, in a similar manner as taught in Gualandi, since to do so would provide for a gyroscopic stability as well as a high thrust pulse centering effect.

Art Unit: 3644

For claim 13, as described above, Stone discloses most of the claimed invention except for indicating that the driving band includes a length less than about 25% of the overall diameter of the firearm round. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the driving band includes a length less than about 25% of the overall diameter of the firearm round, since it has been held where routine testing and general experimental conditions are present, discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Furthermore, since applicant did not provide a reason or an advantage as to why the driving band has to be in a length less than about 25% of the overall diameter of the firearm round, it is believe that through trial and error in manufacturing procedure that one comes up with this value to meet the require design criteria for manufacturing of a firearm round.

6. Claims 6, 10, 15, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stone (US 6,073,560) in view of Dippold et al. (US 5,263,418).

For claims 6 and 18, as described above, Stone discloses most of the claimed invention except for indicating that the sabot comprises a high density polyethylene. However, Dippold et al. teaches a similar firearm round as that of Stone in which Dippold et al.'s firearm round having a sabot (12) made out of polyethylene (see lines 39-41 of col. 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the firearm round of Stone so as to include the use of a polyethylene sabot, in a similar manner as taught in Dippold et al.,

Art Unit: 3644

since using polyethylene sabot would allow the sabot to be compressed when the slug is loaded into the barrel/round and thus provide a snug fit without undesired bulging.

For claim 10, as described above, Stone discloses most of the claimed invention except for indicating that the nose of the slug includes a nose cavity. However, Dippold et al. teaches a similar firearm round as that of Stone in which Dippold et al.'s firearm round having a slug (10) includes a nose cavity/recess (26) thereon. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the firearm round of Stone so as to include a nose cavity/recess in the slug, in a similar manner as taught in Dippold et al., since to do so would allow the forming of spaced petals which curl outwardly and rearwardly; thus, increasing the outer diameter of the slug so that it enhances the cutting and tearing action of the slug as it passes through the target.

For claim 15, as described above, Stone discloses most of the claimed invention except for indicating that the slug comprises at least about 95% by weight lead. However, Dippold et al. teaches a similar firearm round as that of Stone in which Dippold et al.'s firearm round having a slug includes at least about 95% by weight lead (see lines 30-33 of col. 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the firearm round of Stone so as to include a slug having at least about 95% by weight lead, in a similar manner as taught in Dippold et al., since using lead slug (note that lead is a dense and/or heavy metallic element which has high specific gravity) would increase the penetration potential to a target and thus provide more damage to the target.

For claim 16, as described above, Stone discloses most of the claimed invention except for indicating that the slug comprises antimony. However, Dippold et al. teaches a similar firearm round as that of Stone in which Dippold et al.'s firearm round having a slug comprises antimony (see lines 30-33 of col. 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the firearm round of Stone so as to include a slug made out of antimony, in a similar manner as taught in Dippold et al., since using antimony in combination with lead in slug would greatly increase the mechanical strength and hardness of lead and thus would produce a hard and strong slug which would cause more damage to the target.

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stone (US 6,073,560) in view of Stevens (US 5,361,701).

As described above, Stone discloses most of the claimed invention except for indicating that the slug is plated or jacketed.

Stevens teaches a similar firearm round as that of Stone in which Stevens' firearm round having a plated or jacketed slug (137 and 237 in Figures 3 & 4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the firearm round of Stone so as to include the use of a plated or jacketed slug, in a similar manner as taught in Stevens, since to do so would serve to prevent the lead slug from rubbing onto and clogging the rifling and to maintain the integrity in the shape of the slug.



Art Unit: 3644

8. Claims 22, 23, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stone (US 6,073,560) in view of Gualandi (US 6,481,356) and of Hoffman (US 4,939,997).

Stone discloses most of the claimed invention except for indicating that (1) the post integrally formed within the payload receiving chamber and (2) a locking ring residing within the payload receiving chamber.

Regarding (1), Gualandi teaches a similar firearm round as that of Stone in which Gualandi's firearm round having the payload receiving chamber includes a post (8,9). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the firearm round of Stone so as to include the payload receiving chamber having a post, in a similar manner as taught in Gualandi, since to do so would provide for a gyroscopic stability and a mechanism actuating a high thrust pulse centering effect.

Regarding (2), Hoffman teaches a similar firearm round as that of Stone in which Hoffman's firearm round having a projectile/slug (6) mounted within a sabot (1) wherein the sabot further comprises the use of a locking ring (7) so as to engage the projectile/slug therein (see Figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the firearm round of Stone so as to include the use of a locking ring for the engagement of the projectile/slug within the sabot, in a similar manner as taught in Hoffman, since to do so would provide the locking ring as a securing device under centrifugal force and in

Art Unit: 3644

response to the spin acting on the projectile/slug the locking ring will expand to facilitate the projectile/slug exiting from the sabot.

9. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stone (US 6,073,560) in view of Gualandi (US 6,481,356) and of Hoffman (US 4,939,997) (hereinafter is referred to as Stone as modified by Gualandi and Hoffman), and further in view of Dippold et al. (US 5,263,418).

Stone as modified by Gualandi and Hoffman discloses most of the claimed invention except for indicating that the sabot comprises a high-density polyethylene, low-density polyethylene, linear, low-density polyethylene, and combinations thereof.

Dippold et al. teaches a similar firearm round as that of Stone as modified by Gualandi and Hoffman in which Dippold et al.'s firearm round having a sabot (12) made out of polyethylene (see lines 39-41 of col. 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the firearm round of Stone as modified by Gualandi and Hoffman so as to include the use of a polyethylene sabot, in a similar manner as taught in Dippold et al., since using polyethylene sabot would allow the sabot to be compressed when the slug is loaded into the barrel/round and thus provide a snug fit without undesired bulging.

10. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stone (US 6,073,560) in view of Gualandi (US 6,481,356), and further in view of Dippold et al. (US 5,263,418).

As described above, Stone as modified by Gualandi discloses most of the claimed invention except for indicating that the slug comprises at least about 95% by

Art Unit: 3644

weight lead. However, Dippold et al. teaches a similar firearm round as that of Stone as modified by Gualandi in which Dippold et al.'s firearm round having a slug includes at least about 95% by weight lead (see lines 30-33 of col. 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the firearm round of Stone as modified by Gualandi so as to include a slug having at least about 95% by weight lead, in a similar manner as taught in Dippold et al., since using lead slug (note that lead is a dense and/or heavy metallic element which has high specific gravity) would increase the penetration potential to a target and thus provide more damage to the target.

### ***Response to Arguments***

11. Applicant's response filed 5/26/05 have been fully considered and acknowledged.

### ***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 3644

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trinh T. Nguyen whose telephone number is (571) 272-6906. The examiner can normally be reached on M-F (9:30 A.M to 6:00 P.M).

The examiner's supervisor, Teri Luu can be reached on (571) 272-7045. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Trinh T Nguyen  
Primary Examiner  
Art Unit 3644

8/1/05